WE CLAIM:

1   1.   A layer 4 switch comprising:

2   a layer 2 switch having a plurality of ports, wherein a third port is adapted to be in

3   communication with a client;

4   a first server adapted to be in communication with a first one of said plurality of ports;

5   and

6   a second server adapted to be in communication with a second one of said plurality

7   of ports;

8   said first server and said second server being configurable to function with said layer

9   2 switch as a layer 4 switch.

1   2.   The layer 4 switch of claim 1, wherein said layer 2 switch is an ethernet switch.

1   3.   The layer 4 switch of claim 2, further comprising an IP layer, a TCP layer and an

2   ethernet layer are configured to operate in accordance with layer 4 switching protocol.

1   4.   The layer 4 switch of claim 1, wherein only one of said first server and said second

2   server can be an active server for accepting new connections from said client.

1   5.   The layer 4 switch of claim 1, wherein said first server and said second server are

2   configured to share a virtual IP address.

1   6.   The layer 4 switch of claim 5, wherein said first and said second servers are configured

2   to respond to an ARP request for said virtual IP address with a virtual MAC address.

1   7.   The layer 4 switch of claim 5, wherein said only one of said first server and said

2   second server can be an active server such that only the active server accepts new connections.

1   8.   The layer 4 switch of claim 5, wherein at least one of said first server and said second

2   server is a passive server such that said passive server drops all inbound packets having said virtual

3   IP address with a SYN flag set.

1   9.   The layer 4 switch of claim 5, wherein at least one of said first server and said second

2   server is a passive server, said passive server continues to process a previously established session

3   and does not establish a new session.

1   10.   The layer 4 switch of claim 1, further comprising at least one server(s), wherein each

2   one of said at least one server(s) is adapted to be in communication with a different port of said

3   plurality of ports.

1   11.   The layer 4 switch of claim 10, wherein each of said at least one server(s) is

2   configurable to function with said first server, said second server and said layer 2 switch as a layer

3   4 switch.

1   12.   The layer 4 switch of claim 11, wherein said first server, said second server and said

2   at least one server(s) are configured to have a virtual IP address such that said virtual IP address is

3   the same.

1   13.   The layer 4 switch of claim 11, wherein said only one of said first server, said

2   second server and said at least one server(s) can be an active server such that only the active

3   server accepts new connections.

1   14.   The layer 4 switch of claim 13, wherein each one of said first server, said second

2   server and each one of said at least one server(s) that is not the active server are passive servers.

1   15.   The layer 4 switch of claim 14, wherein each said passive server continues to

2   process any previously established session and does not establish a new session.

1   16.   The layer 4 switch of claim 14, wherein if one server of said first server, said second

2   server and said at least one server(s) becomes configured to be a partially active server for a particular

3   IP address, then the other servers of said first server, said second server and said at least one server(s)

4   are configured to partially be passive for said particular IP address.

1   17.   The layer 4 switch of claim 14, wherein said first server, said second server, and said

2   at least one server(s) are configured to determine which server should be said active server.

1   18.   The layer 4 switch of claim 14, wherein said first server, said second server, and said

2   at least one server(s) are configured to communicate with each other via said layer 2 switch in order

3   to determine which server should be said active server.

1   19.   The layer 4 switch of claim 18, wherein said determination of which switch should be

2   the active switch is based on a comparison of a metric associated with each server.

1   20.   A method of creating a layer 4 switch comprising:

2   configuring a plurality of servers to each have the same virtual IP address;

3   configuring said plurality of servers to each have the same virtual MAC address for

4   said virtual IP address;

5   establishing a communication path between said plurality of servers and a layer 2

6   switch such that each one of said plurality of servers is adapted to be in communication with a

7   different port of said layer 2 switch;

8   configuring said plurality of servers, in cooperation with said layer 2 switch, to operate

9   collectively as a layer 4 switch, said layer 4 switch adapted to be in communication with a client via

10   one port of said layer 2 switch.

1   21.   The method of claim 20, wherein said step of configuring said plurality of servers, in

2   cooperation with said layer 2 switch, to operate collectively as a layer 4 switch comprises establishing

3   one of said plurality of servers to be an active server and configuring the remaining ones of said first

4   server, said second server, and said at least one server(s) to be passive servers; said active server

5   being adapted to be able to set up new connections with said client.

1   22.   The method of claim 21, further comprising said plurality of servers communicating

2   with each other via said layer 2 switch at configurable intervals and determining whether said active

3   server should remain said active server or whether another one of said plurality of servers should

4   become said active server.

1   23.   The method of claim 20, wherein said step of configuring said plurality of servers, in

2   cooperation with said layer 2 switch, to operate collectively as said layer 4 switch comprises

3   configuring each of said plurality of servers such that a TCP layer, an IP layer, and a layer 2 protocol

4   acts as said layer 4 switch.

1   24.   The method of claim 23, wherein said layer 2 switch is an ethernet switch and said

2   layer 2 protocol is ethernet.

1   25.   The method of claim 23, wherein said step of configuring said plurality of servers, in

2   cooperation with said layer 2 switch, to operate collectively as a layer 4 switch further comprises

3   establishing one of said plurality of servers to be an active server and configuring the remaining ones

4   of said first server, said second server, and said at least one server(s) to be passive servers; said active

5   server being adapted to be able to set up new connections with said client.

1   26.   The method of claim 25, further comprising changing said active server to a different

2   one of said plurality of servers.

1   27.   The method of claim 21, wherein said step of configuring said plurality of servers, in

2   cooperation with said layer 2 switch, to operate collectively as said layer 4 switch further comprises

3   configuring each of said plurality of servers such that a TCP layer, an IP layer, and a layer 2 protocol

4   acts as said layer 4 switch.

1   28.   The method of claim 27, wherein said layer 2 switch is an ethernet switch and said

2   layer 2 protocol ethernet.

1   29.   A layer 4 switch comprising:

2   a plurality of servers each server configured to have a virtual IP address that is the

3   same and a configurable MAC address for said virtual IP address;

4   a layer 2 switch having a plurality of ports, one of said plurality of ports being for

5   communicating with a client;

6   a communication path between each one of said plurality of servers and said plurality

7   of ports such that a subnetwork is created between said plurality of servers;

8   said plurality of servers being configured to operate collectively with said level 2

9   switch as a level 4 switch wherein only one of said plurality of servers is designated as an active

10   server that establishes new connections with said client, said plurality of servers utilizing said

11   subnetwork at configured intervals to aid in a determination of which server should become said

12   active server.

1   30.   The layer 4 switch of claim 29, wherein said determination of which one of said

2   plurality of servers should become said active server is based on a comparison of at least one metric

3   of each one of said plurality of servers.

1   31.   The layer 4 switch of claim 29, wherein said plurality of servers, in combination with

2   said level 2 switch, are configured to establish an IP layer, a TCP layer and a subnetwork layer to act

3   as a level 4 switch.

1   32.   The layer 4 switch of claim 31, wherein said subnetwork is ethernet.